Inequalities and regions: lines like x + 2y = 8

Exit ticket ANSWERS Name _____

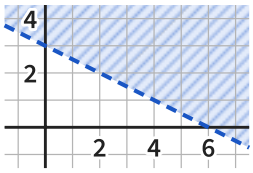
1. Where does the line $3x + y = 6$ cross each axis?

(0, 6) and (2, 0)

2. Is the point (2, 1) in the region $x + 2y < 4$?
Show how you know.

No: 2 + 2 = 4; 4 < 4 is false

3. Show $x + 2y > 6$ on the grid.



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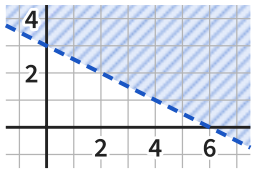

The Maths Habit

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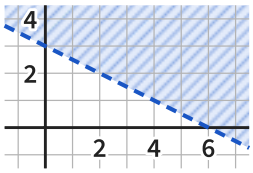

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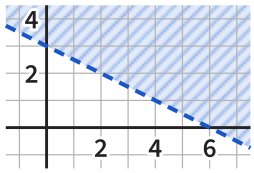

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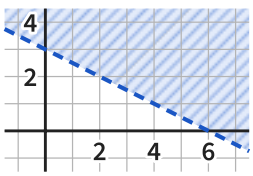

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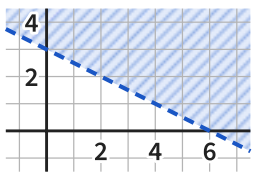

The Maths Habit

Exit ticket Inequalities and regions: lines like x + 2y = 8

NEXT LESSON

1 **Where does the line $3x + y = 6$ cross each axis?**

(0, 6) and (2, 0)

TESTS Where a line like 3x + y = 6 crosses each axis

LOOK FOR
- *(0, 2) and (6, 0)* swapped: $x = 0$ gives $y = 6$, and $y = 0$ gives $3x = 6$, $x = 2$
- *(0, 6) and (6, 0)* $y = 0$: $3x = 6$, so $x = 2$, not 6

FIX IT

Where does the line $x + 4y = 8$ cross each axis? *(0, 2) and (8, 0)*

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2 **Is the point (2, 1) in the region $x + 2y < 4$? Show how you know.**

No: 2 + 2 = 4; 4 < 4 is false

TESTS Testing a point on a dashed line

LOOK FOR
- *yes: 4 < 4* 4 < 4 is false: (2, 1) is on the dashed line
- *yes: 2 + 1 = 3* the 2 in front of y missed: 2 + 2 × 1 = 4

FIX IT

Is the point (1, 2) in the region $2x + y \leq 4$?
Show how you know. *Yes: 2 + 2 = 4 ≤ 4, on the solid line*

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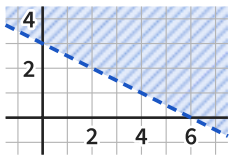
3 **Show $x + 2y > 6$ on the grid.**



dashed through (0, 3) and (6, 0); the side without (0, 0)

TESTS The whole method for a line like x + 2y = 6

LOOK FOR
- *a solid line* > does not include the line, so it is dashed
- *the side with (0, 0) shaded* (0, 0): 0 > 6 is false, so the other side

FIX IT

Is the line for $3x + y \leq 3$ solid
or dashed? Is (0, 0) in the region? *Solid; yes: 0 ≤ 3 is true*